UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/757,246	01/10/2001	Yu-To Chen	RD-27,669	6571

6147 7590 03/04/2004

GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH
PATENT DOCKET RM. BLDG. K1-4A59
SCHENECTADY, NY 12301-0008

EXAMINER	
MAHATAN, CHANNING	
ART UNIT	**PAPER NUMBER**
1631	

DATE MAILED: 03/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/757,246	CHEN ET AL.	
	Examiner	Art Unit	
	Channing S Mahatan	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 December 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 May 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1 Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

APPLICANTS' ARGUMENTS

Applicants' arguments, filed 22 December 2003, have been fully considered but they are not deemed to be persuasive. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

CLAIMS UNDER EXAMINATION

Claims herein under examination are claims 1-14.

Claims Rejected Under 35 U.S.C. § 112 1st Paragraph

LACK OF ENABLEMENT

The rejection of claims 5-14 under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement are maintained for reasons of record. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

In the response filed 22 December 2003 Applicants argue one of ordinary skill in the art would understand what the information generated from the claimed invention (i.e. output) means and would know what to do with the information after it has been generated. Applicants' argument is unpersuasive.

The claimed method for exploring an experimental space using a hybrid learning system (claims 5-13) and system for searching an experimental space (claim 14) fail to denote the

intended goal that would be achieved through the implementation of the instantly claimed invention. One of ordinary skill in the art would not understand, from the claims as written, what the obtained output represents/means and what one does with the output information? It is unclear what the "output" represents and one skilled in the art would not understand what the information means and what to do with the information after the generation of the output without an intended goal. No guidance, direction, or examples are provided such that one of ordinary skill in the art would have known how to use the claimed invention.

Additionally, Applicants assert:

> "...the claimed invention relates to searching a large experimental space of potential experiments to ascertain small fractions of the space which would provide highly reliable outputs as to the solution of investigation. Upon receiving this information, one of ordinary skill in the art would likely want to further investigate these small fractions of the experimental space by actually performing experiments to see what the results would be."

The claims (as written) are not represented as such and from said assertion it appears Applicants' are inviting one of ordinary skill in the art to "to further investigate small fractions of the experimental space by actually performing experiments to see what the results would be". Such further investigation is considered undue experimentation since it is implies the results of the claimed invention are inaccurate and require confirmation of the results by way of performing the actual experiment "to see what the results would be". Applicants are requested to clarify the above statement with respect to the results of the claimed invention requiring further undue experimentation for confirmation.

It should be noted the language "a finalized output of evaluation points" (claim 1, line 15) is believed, by the Examiner, to be defined as a finalized output of a "set of experiments to be run" as set forth in claim 1 on line 6.

Claims Rejected Under 35 U.S.C. § 112 2nd Paragraph

The rejection of claims 1-14 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention are maintained for reasons of record.

VAGUE AND INDEFINITE

Claim 1 and all claims dependent therefrom recite "...to use selection techniques to select a set of evaluation points..." which is vague and indefinite. Applicants submit the "selection techniques" are clear in its use in the claimed invention and one of ordinary skill in the art would be able to use any one of a variety of selection techniques described on page 7, lines 4-20 in the present patent application. However, it appears Applicants' cited section of the specification states the following with respect to selecting:

> "Search engine output selector 35, may be provided to select at least one output from either processor 32 or 34, to be passed to point evaluation mechanism 30."

Absent is any indication of what the "selection techniques" are. Thus, it is unclear what "selection techniques" are utilized in the claimed invention. Clarification of the metes and bounds, via clearer claim language, is requested.

Claims 1, 5, and all claims dependent therefrom recite "wherein operation of the data mart, search engine and point evaluation mechanism are operated a plurality of times such that a repeating process is undertaken to obtain a finalized output of evaluation points"/"obtaining an output" which is vague and indefinite. Applicants' submit the specification "provides enough of

a degree of precision and particularity that one of ordinary skill in the art would understand the metes and bounds of when to stop the process". This is unpersuasive because a skilled artisian would be unable to understand at what point one would stop the repeating process (i.e. the steps of the data mart, search engine and point evaluation mechanism may be repeated unlimitedly in the absence of criterias establishing when to stop the repeating process. Claim 5 remains unclear as to what the "output" represents via an intended goal (Refer to above 35 U.S.C. 112 1st Paragraph Rejection). It is noted Applicants' did not address this rejection as it was applied to claim 5. Clarification of the metes and bounds, via clearer claim language, is requested.

Claim 4 recites the limitation "the output of the system is a set of elements that yield a highest turnover (TON) and selectivity" which is vague and indefinite. It appears the specification is devoid of the criteria/definition establishing what a "turnover number (TON)" and "selectivity" is. Applicants submit "turnover number (TON)" and "selectivity" are well known to people in the art of Combinatorial Chemistry and do not need to be defined. However, this is unpersuasive. Applicants are invited to submit publications, via an 'Information Disclosure Statement', that can establish "turnover number (TON) and "selectivity" is well known to people in the art of Combinatorial Chemistry at or prior to the time of filing. Clarification of the metes and bounds, via clearer claim language, is requested.

Claim 10 recites the step "partitioning the experimental space into clusters of points having similarities" which is vague and indefinite. Applicants submit the limitation is clear in its use in the claimed invention and one of ordinary skill in the art would be able to use any one of similarity criteria detailed in the present patent application on page 9, line 2 through page 17, line 16. This is found unpersuasive wherein the specification, for example, states:

> "Figure 6 depicts a flow diagram 70 of an unsupervised learning process for CC-space exploration. Once the CC-space is defined 72, it is partitioned into clusters of points having similarities 74. Clustering does not initially address itself to finding a solution of an experiment, but rather arranges the CC-space into a design where like points are provided within a particular cluster. Therefore, points within a particular cluster (or sub-space) of the CC-space are highly correlated to each other. Likeness may be defined on a per application basis. One example may be points are clustered with the largest individual element of a combination of elements." (page 10, lines 11-18)

It appears the criteria (i.e. range of values) one can assess points as similar thereby clustering said points, is absent from the cited location specification. Again, in the absence of a similarity criterion one would not know what the parameters are to partition experimental space into cluster of points that are "similar" versus "non-similar". Applicants can resolve this issue by particularly pointing out the criteria (i.e. range of values) that establishes points to be similar. Clarification of the metes and bound, via clearer claim language, is requested.

Claims 10 and 11 recite the step "performing at least one of actual physical experiments"/"at least actual physical experiments" which is confusing. It is unclear as to the limitation(s) implied by Applicants regarding an "actual physical experiment" versus "a non-actual physical experiment"? Clarification of the metes and bounds, via clearer claim language, is requested.

Claim 13 and all claims dependent therefrom recite the phrase "a new model" which is vague and indefinite. It is unclear as to the metes and bounds "new" is to encompass, however, Applicants can resolve this issue by particularly pointing out the criteria/range which encompasses "new". Clarification of the metes and bounds, via clearer claim language, is requested.

MISSING ESSENTIAL STEPS

Claims 2, 7, and all claims dependent therefrom are rejected under 35 U.S.C. § 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See M.P.E.P. 2172.01. Claims 2 and 7 recite the limitation "results of the physical experiment are supplied to the data mart." However, omitted are the steps/procedures by which the results are supplied to the data mart (i.e. converted into numerical values for the data mart and then inputted). Applicants submit that the present patent application has not described the steps/procedures by which results are supplied to the data mart as essential to the claimed invention and since the steps/procedures were not described as essential to the claimed invention, Applicants submits that these steps/procedures do not have to be recited in claims 2 and 7. This is found unpersuasive, wherein the limitation of claims 2 and 7 require the results of the physical experiment to be supplied to the data mart and it is unclear the steps/procedures by which the physical experiments are to be supplied to the data mart. For example, if a Western blot (physical experiment) is performed and results in numerous protein bands by what steps are these bands supplied to the data mart? Clarification of the metes and bounds, via clearer claim, language is requested.

No Claims Are Allowed.

ACTION IS FINAL

THIS ACTION IS MADE FINAL. Applicants are reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 C.F.R. § 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

EXAMINER INFORMATION

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993) (See 37 C.F.R. § 1.6(d)). The CM1 Fax Center number is either (703) 872-9306.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Channing S. Mahatan whose telephone number is (571) 272-0717. The Examiner can normally be reached on M-F (8:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael P. Woodward, Ph.D., can be reached on (571) 272-0722.

Any inquiry of a general nature or relating to the status of this application should be directed to Legal Instruments Examiner, Tina M. Plunkett, whose telephone number is (571) 272-0549 or to the Technical Center receptionist whose telephone number is (703) 308-0196.

Date: March 3, 2004

Examiner Initials: CSM

Marianne P. Allen

MARIANNE P.
PRIMARY EXA
AU1631